

WHAT IS CLAIMED IS:

1. An optical device, comprising:
  - a fixed reference;
  - a first optical module having a first optical component prealigned relative to a reference standard, the first optical module mounted to a first predetermined location on the fixed reference; and
  - a second optical module having second optical component prealigned relative to a reference standard, the second optical module mounted to a second predetermined location on the fixed reference;wherein the first and second optical modules are oriented relative to the reference standard and the first and second predetermined locations to optically interact with one another in a desired manner.
2. The optical device of claim 1 wherein the first and second optical modules carry reference features and the prealignment is with respect to the reference features.

3. The optical device of claims 1 or 2 wherein the fixed reference carries reference features at the first and second predetermined locations.
4. The optical device of claim 1 wherein the first optical module comprises:
  - a first prealignment mount; and
  - the first optical component is mounted in the first prealignment mount.
5. The optical device of claim 4 wherein the second optical module comprises:
  - a second prealignment mount; and
  - the second optical component mounted in the second prealignment mount.
6. The optical device of claim 4 wherein the first optical component is fixed at a prealigned orientation by the first prealignment mount.
7. The optical device of claim 6 wherein the first optical component can move with six degrees of freedom relative to reference features prior to being fixed to the first prealignment mount.
8. The optical device of claim 4 including a prealignment mount coupling adapted to fixedly couple the first optical component to the first prealignment mount at a prealigned orientation.

9. The optical device of claim 1 including a first fixed reference coupling to fixedly couple the first optical module to the fixed reference.

10. An optical device, comprising:  
a fixed reference;  
a first optical module comprising:  
a first optical component;  
a first prealignment mount;  
a first fixed reference coupling which fixedly couples the prealignment mount to a predetermined location on the fixed reference;  
a first prealignment mount coupling which fixedly couples the first optical component to the first prealignment mount at a prealigned orientation relative to the fixed reference coupling;  
a second optical module comprising:  
a second optical component;  
a second prealignment mount;  
a fixed reference coupling which fixedly couples the prealignment mount to a predetermined location on the fixed reference;  
a second prealignment mount coupling which fixedly couples the second

optical component to the second prealignment mount at a prealigned orientation relative to the fixed reference coupling;

wherein the first and second optical components are oriented to optically interact with one another in a desired manner.

11. The optical device of claim 10 wherein the first and second fixed reference coupling include reference features.

12. The optical device of claims 10 or 11 wherein the fixed reference includes reference features at the first and second predetermined locations.

13. The optical device of claim 10 wherein the first optical component can move with six degrees of freedom prior to being fixed by the first prealignment mount coupling.

14. A method of manufacturing an optical device, comprising:

obtaining a fixed reference;

obtaining a first prealigned optical module  
having a first optical component  
prealigned with a reference standard;

obtaining a second prealigned optical module  
having a second optical component  
prealigned with the reference standard;  
and

fixedly mounting the first and second  
optical modules at predetermined  
locations on the fixed reference  
wherein the first and second optical  
devices are positioned to optically  
interact with each other in a desired  
manner due to their prealignment.

15. The method of claim 14 including placing the  
first and second prealigned optical modules at  
predetermined locations on the fixed reference prior to  
fixedly mounting.

16. The method of claim 14 including prealigning  
the first and second optical modules prior to fixedly  
mounting.

17. The method of claim 16 wherein prealigning  
the first and second optical modules comprises aligning  
the modules in a reference frame defined by the  
reference standard.

18. The method of claim 17 wherein prealigning comprises fixing the first and second optical components in prealignment mounts, respectively.

19. The method of claim 16 wherein prealigning includes compensating for optical variations in the optical components.

20. The method of claim 19 including:  
obtaining a third prealigned optical module  
having a third optical component  
prealigned with the reference standard;  
and  
fixedly mounting the third prealigned  
optical module at a predetermined  
location on the fixed reference wherein  
the third optical module is positioned  
to optically interact in a desired  
manner with at least one of the first  
and second optical modules.

21. An optical device manufactured in accordance with claim 14.

22. Computer software configured to implement the method of claim 14.